

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
22 September 2005 (22.09.2005)

PCT

(10) International Publication Number
WO 2005/087660 A1

- (51) International Patent Classification⁷: C01B 25/32, 25/455, C01F 11/18, 11/46
- (21) International Application Number:
PCT/CH2004/000151
- (22) International Filing Date: 15 March 2004 (15.03.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (71) Applicant (for all designated States except US): EID-GENÖSSISCHE TECHNISCHE HOCHSCHULE ZÜRICH [CH/CH]; Rämistrasse 101, 8092 Zürich (CH).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): STARK, Wendelin, Jan [CH/CH]; Hönggerstrasse 43, 8037 Zürich (CH). PRATSINIS, Sotiris [GR/CH]; Aurorastrasse 73, 8032 Zürich (CH). MACIEJEWSKI, Marek [PL/CH]; Lim-mattalstrasse 233, 8049 Zürich (CH). LOHER, Stefan, Fridolin [CH/CH]; Wehntalerstrasse 116, 8057 Zürich (CH). BAIKER, Alfons [CH/CH]; Rietgrabenstrasse 63, 8152 Opfikon (CH).
- (74) Agent: E. BLUM & CO.; Vorderberg 11, 8044 Zürich (CH).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: FLAME SYNTHESIS OF METAL SALT NANOPARTICLES, IN PARTICULAR CALCIUM AND PHOSPHATE COMPRISING NANOPARTICLES

(57) Abstract: Described is a method for the production of metal salts, wherein the cationic metal is preferably selected from Group I to IV metals and mixtures thereof and the anionic group is selected from phosphates, silicates, sulfates, carbonates, hydroxides, fluorides and mixtures thereof, and wherein said method comprises forming a mixture of at least one metal source that is a metal carboxylate with a mean carbon value per carboxylate group of at least 3 and at least one anion source into droplets and oxidizing said droplets in a high temperature environment, preferably a flame. This method is especially suited for the production of calcium phosphate biomaterials such as hydroxyapatite (HAp, $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$) and tricalcium phosphate (TCP, $\text{Ca}_3(\text{PO}_4)_2$) that exhibit excellent biocompatibility and osteoconductivity and therefore are widely used for reparation of bony or periodontal defects, coating of metallic implants and bone space fillers.

WO 2005/087660 A1